

March 2014

# A PRICE TOO HIGH TO BEAR:

The Costs of Maternal Mortality  
to Families and Communities

Summary of Research Findings



## Foreword

No woman should die during pregnancy and childbirth. Unfortunately Kenya has not yet made significant progress in reducing the maternal mortality rate, which at last count was 360 maternal deaths per 100,000 births. Over the last 20 years, this rate has only come down by ½ of one percent per year. With 2015 rapidly approaching, there is so little time left for Kenya to accelerate its progress on MDG 5.

Before we could only guess at the devastating toll that all of these tragic maternal deaths take on surviving families and children. *A Price Too High to Bear* documents those costs – emotional as well as financial – with both hard facts and heart-breaking stories. A mother's death begins a chain of disruption, economic loss, and pain that, far too often, leads to the death of her baby, loss of educational and life opportunities for her surviving children, and a deepening cycle of poverty for her family.

The Kenyan government is committed to eliminating preventable maternal deaths, both as a health goal and because of its broader implications for the well-being of Kenya's families and communities. We know what must be done. We must ensure that women have access to quality maternal health care; it is their constitutional right and we must do all that we can to ensure that those rights are fulfilled.

James Macharia  
Cabinet Secretary for Health  
Ministry of Health

## Summary of key findings

From 2011 to 2013 Family Care International (FCI), the International Center for Research on Women (ICRW), and the KEMRI/CDC Research and Public Health Collaboration, in cooperation with the Kenya's Ministry of Health and with support from the U.K. Government, the John D. and Catherine T. MacArthur Foundation, and the Partnership for Maternal, Newborn & Child Health, conducted a study entitled *A Price Too High to Bear: The Costs of Maternal Mortality to Families and Communities*. This study, undertaken in three sub-counties in Western Kenya, aimed to document the financial costs of maternal mortality to households in poor remote communities and to explore the impact of these costs on family well-being. The study's key findings included the following:

### **The loss of a mother harms her surviving family members, and her children's health, education, and future opportunities.**

- Maternal death is linked to high neonatal mortality: of the 59 maternal deaths in the study, only 15 babies survived the first 60 days of life.
- Surviving children in some cases were withdrawn from or forced to miss school, because economic disruptions made it difficult to afford school fees. When children did continue their schooling, often their grief and new household responsibilities negatively affected their schoolwork.
- A mother's death suddenly increases the tasks and responsibilities that her surviving husband, mother and mother-in-law have to shoulder. For the grandparents, in particular, this means that once again they have to shoulder the burden of childcare.

### **The cost of fatal pregnancy and childbirth complications is a heavy economic burden.**

- Regardless of household wealth, families that experienced a maternal death reported spending approximately 1/3 of their total annual consumption expenditure to access pregnancy and childbirth care, between 3 and 6 times more than households where a woman gave birth safely.
- This approaches what WHO calls a 'catastrophic' cost (40% of disposable income), and suggests that some families may avoid or delay emergency care because of difficulty in covering the costs of transport and services.
- In nearly half of all cases, families needed to look outside the household for money to pay for maternity care — in many cases from sources in their communities, but sometimes by borrowing from a moneylender or even selling household property.

### **When a woman dies, her funeral costs are a crippling hardship for her family.**

- Across all wealth levels, families' funeral costs exceeded their total annual expenditure on food, housing, and all other household consumption.
- On average, economically active members took a month off from work during the funeral period. Given the already high costs of the funeral, this lack of economic activity is an additional burden for the household.

### **The sudden loss of a productive woman disrupts the family's economy and its daily life.**

- Many of the women who died were also economically active, many working on their own or family farms, or running their own market stalls, shops, or other small businesses. The loss of their labour or income caused significant economic disruption.
- Many families reported losing crops or being forced to leave their land uncultivated because of the loss of the woman's labour or reduction in work by surviving family members. Others were pushed further into poverty when they had to hire casual labourers to work their fields.

# Research Objectives and Methods

## Research questions

This study aimed to document the financial costs of maternal mortality to households in poor, remote communities and to explore the impact of these costs on family well-being, focusing on the following research questions:

- What financial costs do households face as a result of maternal mortality, and what are the effects of these costs on households?
- What are other economic consequences faced by the household where a woman dies in childbirth?
- What are the social, emotional, and non-economic consequences of a maternal death for households?

The findings from this study are summarised in this technical brief; the research team intends to publish more detailed presentations of the data and analysis during 2014 in a series of scholarly journal articles.

## Study site

The study was conducted in Rarieda, Gem, and Siaya sub-counties, lying northeast of Lake Victoria in Siaya County, Kenya. This area has some of the highest HIV, tuberculosis, and malaria rates in the country; consistently performs among the worst on indicators of child and overall health status; and is one of the most poorly served counties in terms of public health facilities (Nyanjom 2006; Wamai, 2009). The study area is nested within the geographic region covered by KEMRI/CDC's Health and Demographic Surveillance System (HDSS). The HDSS, established in 2001, is a population registration system that monitors health and demographic dynamics in a geographically defined population.

The maternal mortality ratio (MMR) in the sub-counties covered by this study was estimated most recently at 740 per 100,000 live births between 2003-08 (Desai et al., 2013), more than twice the 2010 maternal mortality ratio for Kenya as a whole in that period. According to the most recent Demographic and Health Survey, while a majority of surveyed Kenyan women do receive some antenatal care, only a minority deliver at a health facility, and very few receive any postnatal care. This appears to be the case in the study area as well as nationally.

## Study design

Since maternal death is a rare event, we attempted to identify and interview respondents about all maternal deaths that occurred within the surveillance area during a period of 22 months, the duration of the data collection period of the study. To minimize recall issues, we recruited households on a rolling basis, after a period of at least two months after the maternal death, and no later than six months, in order to ensure that they were respected during a time of grief but interviewed as soon as possible.

Two control households were interviewed per each "case" household. Case households were defined as households where a maternal death had occurred. Control households were defined as households where a woman had a live birth around the time of the maternal death (or within 2 months of the maternal death).

## Quantitative data collection

Using two quantitative survey questionnaires, we collected data from all identified households (cases and controls). The first questionnaire (the “Cost Questionnaire”) collected information on the care sought for complications during the pregnancy, childbirth, and postpartum periods, and the associated costs for each incidence of help seeking. It was designed to capture costs associated with using a range of such services, both “institutional” services — typically hospitals, health centres, and private clinics — and traditional “non-institutional” services provided by tradi-



tional birth attendants (TBAs) and informal medical practitioners. The second questionnaire (the “Socioeconomic Status (SES) Questionnaire”), also administered to all identified households when feasible, collected key socio-economic information on women and their households. This included household expenditure on food and non-food items as well as durable goods, and household asset ownership and dwelling characteristics. Case households were also asked about the deceased women’s employment and time use, and other adult household members’ employment and time use. We collected cost data from 59 case households and SES data on 53 of these households; both sets of data were collected from all 86 control households.

## Qualitative data collection

We conducted a total of 11 group discussions and in-depth interviews to shed further light on the disruptive impact that a maternal death has on the surviving family. Each discussion took place after the quantitative surveys were completed, and within 6 months after the maternal death. Since the aim of the study was to capture the experiences and disruptions caused by a maternal death to the lives of different household members as a collective household unit, and since households in the study area cohabited in homesteads, each discussion group comprised available and consenting surviving adults from a single homestead.

## Analysis of HDSS data

We also conducted an analysis from the existing HDSS data set. Our analysis focused on the impact of a maternal death on child survival, one of the most profound and tragic “costs” of a maternal death. Longitudinal data were extracted from households in the HDSS catchment area in which a woman’s pregnancy, between 2003 and 2011, had resulted in a maternal death but also a live birth. Those cases were matched with control households that had a mother who died of non-maternal causes, as well as households where the mother was still living. These cases were matched by timing of birth (children born within 2 months of the maternal death), then randomly selected.

## Research Findings



**Improving maternal health** is widely acknowledged as a global public health priority and an urgent social justice and human rights issue, in Kenya as in many developing countries.

Maternal death, defined by the World Health Organization as *the death of a woman while pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management*, is particularly tragic (WHO, n.d.). Kenya continues to have a high maternal mortality ratio (MMR), despite commitment from the government to address the issue. Calculations by WHO, UNICEF, UNFPA, and the World Bank, based on available national data for Kenya, show that MMR declined minimally between 1990 and 2010, from 400 per 100,000 births to 360 (WHO 2012). Estimates by others are higher, such as an MMR of 560 per 100,000 between 1993-2010 calculated by Hill et al. (2007), and an MMR between 1998-2008 at 488 per 100,000 births in the Kenyan Demographic and Health Surveys (KNBS and ICF Macro, 2010).

Given women's critical roles in the family and in society, dying during their most productive years can have profound consequences for their household and the community at large (Gill et al., 2007). This impact can be particularly severe in cases of maternal mortality, often unexpected and in many cases accompanied by the addition of a newborn, which can set off a multitude of shocks and changes to the basic functioning of a household. These profound social and economic consequences of poor maternal health, then, situate the issue as a broader development concern as it relates to women's own status and empowerment, household economic and social well-being, and economic and social development at the community and national levels. However, solid data have been lacking on the financial costs of maternal mortality to families, communities, and societies, as well as on the social costs of maternal death in terms of the health and well-being of surviving children and families.

The findings from the *A Price Too High to Bear* study show, clearly and unequivocally, that when a woman dies from pregnancy or childbirth-related causes, her illness and death begin a chain of loss that harms her children's health, education, and future opportunities; deepens household poverty; disrupts the life of her family; and devastates her loved ones with grief. The economic and human costs of maternal death are truly a price too high to bear.

## Overview of study population

There were no significant differences between the cases and controls (in other words, the women who died and the women who experienced healthy pregnancies) in regards to age distribution, number of children, marital status, and educational status. The mean age of the women who died was 27.3; a majority of them were in monogamous marriages or cohabitating relationship, and over two-thirds had at least a primary education.

## Care seeking during delivery

Of the 59 cases of maternal death identified and examined in the study, 14 of the women died during the last three months of pregnancy, one died during labour, and 44 died post-delivery. The study was not able to determine the causes of maternal deaths from the information collected. However, a vast majority (over 70%) of the maternal deaths occurred in the course of a normal delivery, while the remainder of the women who died had experienced a caesarean section, use of forceps, or other intervention. By comparison, virtually all the surviving mothers had a normal vaginal delivery. While the ratios of home (around 34%) and institutional (around 65%) deliveries was similar for both groups, almost twice as many women who died had delivered in a hospital while women who did not die were more likely to deliver in a health clinic. We theorise that this is because women experiencing life-threatening complications (at home or in a health centre) have a higher likelihood of being referred for hospital care; however, hospital treatment may have been ineffective in saving their lives due to late referral, transportation delays, or an insufficient standard of care.

## Neonatal survival

One of the most striking impacts of a maternal death is on neonatal survival. Of the 59 cases of maternal death in this study, 31 infants survived delivery, and of these, 8 died in the first week of life and another 8 died in the next several weeks, leaving a total of only 15 surviving babies from 59 pregnancies.

To further explore the issue of child survival in cases of maternal mortality, we analysed an additional data set, the HDSS for the period from 2003-2011. We identified 90 live births to women who died of maternal causes and matched them to 90 live births to women who were still living and 74 live births to mothers who died of non-maternal causes. The differences between the groups in terms of child survival were stark. Fully one-quarter of the babies born to a mother who died of maternal causes did not survive the first seven days of life; in comparison, 4% of the babies born to women who died of non-maternal causes and only 1% of the babies whose mother was still living had died during their first week. A year after the births, fewer than one-third of the babies born in cases of maternal death were still alive, while about half of the babies born to women who died of non-maternal causes and nearly all of the babies born to surviving women were still alive to celebrate their first birthdays.

## Financial costs and their impact on households

A comparison of the costs associated with seeking care during pregnancy, labour and postpartum, reveals that women who died incurred dramatically higher overall costs than women who experienced safe or uneventful pregnancy and delivery. These higher costs, as reported by families in the case and control questionnaires, were likely a result of treating life-threatening complications. The costs during pregnancy included fees, transport costs, and other medical and non-medical costs incurred outside of the health facility. The average total cost during pregnancy was KES 7,322 for cases and KES 934 for controls, and the average total costs during labour and postpartum for cases was KES 8,127 compared to controls at KES 1,970.

**Figure 1: Average total cost of health care utilization**

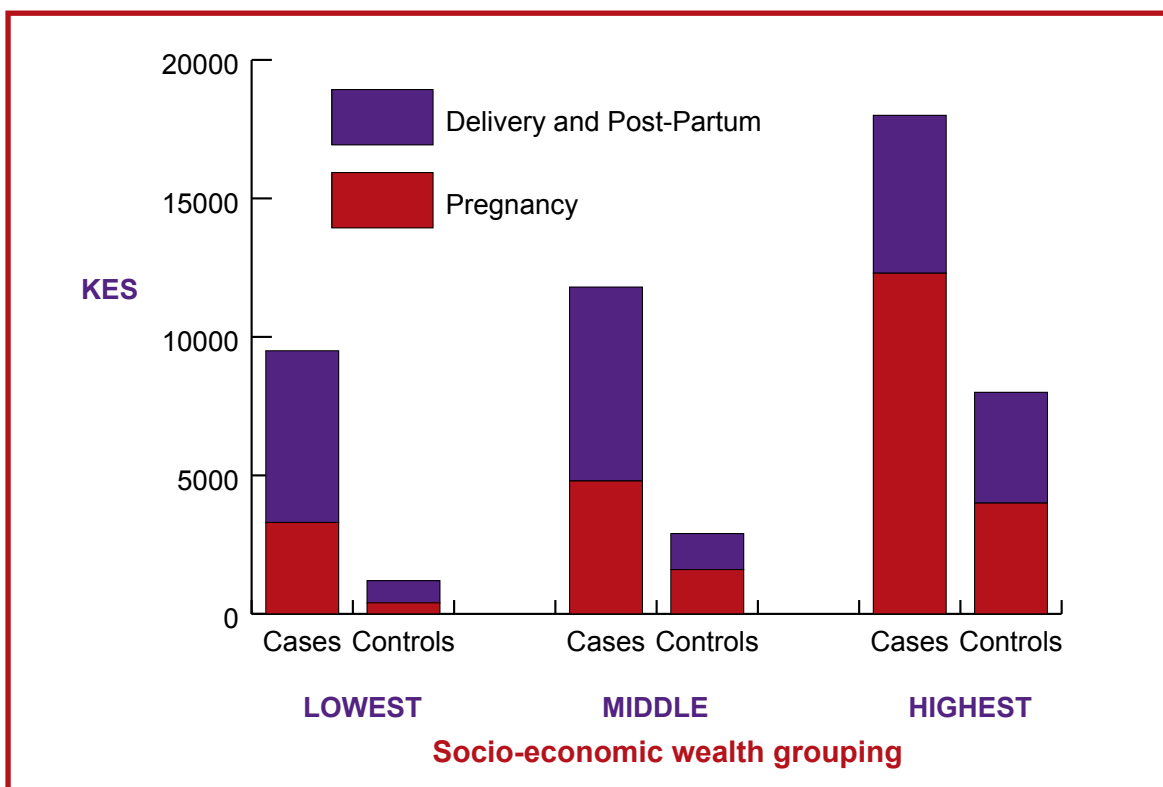


Figure 1 presents the average total costs incurred in accessing and use of services for all phases (pregnancy, labour and postpartum) across case and control households in the three wealth groups.<sup>1</sup> Poor households that experienced a maternal death were especially hard hit by these high costs. These poor households actually reported paying more, for health care costs associated with delivery and postpartum, than the wealthiest households with a mother who survived.

We also analysed the share that these costs constitute in households' total per capita consumption expenditure. Regardless of household wealth, families that experienced a maternal death reported having spent approximately one-third of their total annual consumption expenditure on pregnancy and childbirth care, between three and six times more than households where a woman gave birth safely.

### Financing of health and funeral costs

For both cases and control households, savings were the first source for money to pay for health-related costs. However, almost half of the households in cases of maternal death had to seek financing from sources outside of the household, including fundraising and welfare groups, versus only a fifth of the control households. While a minority of households (both cases and controls) reported receiving some type of social insurance or waiver, a higher percentage of control households had insurance (almost 25%) compared to cases (less than 10%). In many cases, maternal death appeared to have hit families with the least resources to manage its high cost.

Funeral costs were an additional economic strain for households that experienced a maternal death. Some of the households had very high funeral costs, as high as KES 182,500. None of the households reported having insurance that could cover funeral expenses. A majority of the families obtained financing from multiple sources to cover funeral expenses, including family members, fundraising, and welfare groups. In addition, over a quarter of the households reported selling assets, and close to 15% reported seeking assistance from a financier or moneylender to pay for funeral costs.

<sup>1</sup> As a measure of SES status, household asset data as well as key variables of household dwelling characteristics were used to construct wealth groupings.



## Impacts of maternal deaths on household economic activity

Financial costs associated with maternal mortality can have a devastating impact on households' budgets and resource allocations. The economic impact on the family does not end there. In rural Kenya, where this study took place, the household structure and the multiple roles of women in them follow a similar pattern. In most of the case households that were interviewed, the women who died had carried out a significant portion of household tasks, and were involved in farming and other income-generating activities to contribute to household income. Of the women who were involved in farming, almost half had their own farms, and the other half worked on family farms.

When a woman dies, not only does the family lose a productive member, but it also has to deal with additional economic consequences due to the ensuing reallocation of time and labour for household work and economic activity. Families reported that women who died had contributed an average of 61 hours of household work each week, including childcare, cooking, laundry, and fetching water and firewood. Their husbands, mothers-in-law, older children, or other surviving family members had to pick up the slack: 88% of families reported that this had reduced those members' ability to contribute earnings to household income.

Given that many of the women who died had contributed crucial farming labour to the household, their deaths in some cases forced the household to allow land to lie fallow, or to cultivate fewer crops; some families noted that they had lost crops. As with household tasks, the disruption chain rippled through the household, so that surviving household members could not allocate to farming the time they had when the woman was alive. 'He [the deceased woman's spouse] has reduced his working on the farm he does not work on the farm like before when they were together with the deceased,' reported the mother-in-law of one woman who died. Other families were pushed further into poverty by the cost of hiring casual labourers to work in their fields.

Maternal death had an additional immediate impact on the economic activity of surviving family members, who often had to take substantial time off from work during the illness and the funeral period. Many family members reported losing between 16 and 26 days of productive activity, deepening the family's economic hardship. A majority of households also reported significant longer-term impacts on their economic activity. In some households, for example, mothers-in-law had to give up their wage labour — and the income it brought in — to take care of the children left behind by their mother's death.

## Social, emotional and other non-economic consequences

In this region of Kenya, a 'household' is made up of all those who eat under the same roof. Before the maternal death, the majority of individuals in the household ate in the woman's own home. After she died, only about a quarter of individuals from her household continued eating in her house. Of those who changed where they had their meals — most of them children under the age of 18 — the vast majority stated that they had switched their eating place because of the death of the mother. In most cases, children began taking meals in the home of their grandmother, thus adding to the household burden of women who may have finished their child-rearing responsibilities years before. Other children were moved out of the household entirely, given to relatives for foster care. Most grandparents, while acknowledging the extra responsibility and disruption that the maternal death brought in its wake, also made clear that they considered this as a natural part of taking care of one's own. Thus, children were assured some care by a family or kin member.

The qualitative data offer evidence that children often experience serious educational disruption after their mother dies. In a number of cases, families reported that children withdrew from school because the household could no longer afford to pay the school fees, due to the loss of the deceased



mother's income or the need to hire casual farm labour. Children who were able to remain in school often had less time for schoolwork — and less time to actually attend school — because they now had additional household and sibling care responsibilities.

Cultural practices particular to the study area, particularly related to familial hierarchy and marital status, should be noted. A local custom dictates that a widower should live alone. The children may move, for example into their grandmother's home, but '[h]er husband still stays alone the way Luo customs dictate,' according to one mother-in-law. He also does not typically get much household help: for instance, his mother cannot cook for him '[u]ntil it reaches a point where he now gets another lady [that is, another wife]'. On the whole, '...the Luo traditions say he is still washing alone, he does his things himself.' These traditions may exacerbate the disruptions for the surviving spouse, children, and other family members after a maternal death.

## Conclusion

Across the developing world, a woman dies every two minutes from complications of pregnancy and childbirth. This new study from Kenya — conducted in an area of high poverty, high maternal and newborn mortality, and low access to quality health services — clearly demonstrates the devastating impact of these needless deaths on the well-being of families, the survival of newborns, the health and opportunities of surviving children, and the economic productivity of communities.

**In Kenya and other countries with high burdens of maternal mortality, these findings must catalyse renewed and strengthened efforts to:**

- **Ensure universal access to reproductive, maternal, newborn, and child health care**
- **Improve the quality of health services, including emergency obstetric care**
- **Strengthen referral services**
- **Improve financial and social support for women and families facing maternal health crises**

## References

Desai M, Phillips-Howard PA, Odhiambo FO, et al. 2013. "An analysis of pregnancy related data in the KEMRI/CDC Health Demographic Surveillance System in western Kenya." *PLoS ONE*, 8(7): e68733.

Gill K, Pande R, and Malhotra A. 2007. *Women Deliver for Development*. Background paper for the Women Deliver Conference, October 18-20, 2007. Washington, DC: ICRW and New York, NY: FCI. [http://www.womendeliver.org/assets/Background\\_Paper.pdf](http://www.womendeliver.org/assets/Background_Paper.pdf)

Hill, K., Thomas, K., AbouZahr, C., Walker, N., Say, L., Inoue, M., and Suzuki, E. 2007. "Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data," *Lancet* 370(9595): 1311 - 1319.

Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2010. *Kenya Demographic and Health Survey 2008-09*. Calverton, Maryland: KNBS and ICF Macro.

Nyanjom, O. 2006. "Inequality in Kenya's Health Sector," In: *Reading on Inequality in Kenya, vol.1, Society for International Development: 97-156*. [www.hennet.or.ke/downloads/humanrights/InequalityKenya.pdf](http://www.hennet.or.ke/downloads/humanrights/InequalityKenya.pdf)

Wamai, RG. 2009. "The health system in Kenya: Analysis of the situation and enduring challenges." *Japan Medical Association Journal*, 52: (2).

WHO (World Health Organization), n.d. Health Statistics and Health Information Systems. <http://www.who.int/healthinfo/statistics/indmaternalmortality/en/index.html>

WHO, UNICEF, UNFPA and the WB. 2012. Trends in Maternal Mortality: 1990 to 2010. [http://www.unfpa.org/webdav/site/global/shared/documents/publications/2012/Trends\\_in\\_maternal\\_mortality\\_A4-1.pdf](http://www.unfpa.org/webdav/site/global/shared/documents/publications/2012/Trends_in_maternal_mortality_A4-1.pdf)

## Acknowledgements

The research study summarized in this technical brief was conducted by Family Care International, the International Council for Research on Women, and the KEMRI/CDC Research and Public Health Collaborative, in cooperation with the Ministry of Health and with the financial support of the U.K. Government, the John D. and Catherine T. MacArthur Foundation, and the Partnership for Maternal, Newborn & Child Health. The primary members of the research team were (in alphabetical order) Zayid Douglas, Robinson Karuga, Aslihan Kes, Kayla Laserson, Frank O. Odhiambo, Sheila Ogwang, Rohini Prabha Pande, Radha Rajan, and Kathleen Schaffer. The research team is grateful to many colleagues for their contributions to this project, and particularly to all of the families who generously participated in interviews and group discussions.

Photo credits: Ronald Stiling (cover photo); Richard Lord (interior photos).

With support from:



MacArthur  
Foundation



**FCI Kenya**  
P.O. Box 45763  
Laikipia Town Houses - House 3  
Laikipia Road, Kileleshwa  
Nairobi, Kenya

Email: [fcikenya@fcimail.org](mailto:fcikenya@fcimail.org)

[www.familycareintl.org](http://www.familycareintl.org)